



MARINE DIVISION

Certificate number: 32607/A0 BV

File number: ACM 145/2570/01

Product code: 73311

This certificate is not valid when presented without the full attached schedule composed of 7 sections

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TYPE APPROVAL CERTIFICATE

This certificate is issued to

BESTOBELL
SHEFFIELD - UNITED KINGDOM

for the type of product

GLOBE VALVES FOR LIQUEFIED GASES

Manual / Actuated Globe Valves & Lift Check Valve

Requirements:

- BUREAU VERITAS Rules for the Classification of Steel Ships
- IGC Code

This certificate is issued to attest that BUREAU VERITAS did undertake the relevant approval procedures for the product identified above which was found to comply with the relevant requirements mentioned above.

This certificate will expire on: 25 Mar 2019

For BUREAU VERITAS,

At BV LONDON, on 25 Mar 2014,

Spencer Yule



This certificate remains valid until the date stated above, unless cancelled or revoked, provided the conditions indicated in the subsequent page(s) are complied with and the product remains satisfactory in service. This certificate will not be valid if the applicant makes any changes or modifications to the approved product, which have not been notified to, and agreed in writing with BUREAU VERITAS. Should the specified regulations or standards be amended during the validity of this certificate, the product(s) is/are to be re-approved prior to it/they being placed on board vessels to which the amended regulations or standards apply. This certificate is issued within the scope of the General Conditions of BUREAU VERITAS Marine Division available on the internet site www.veristar.com. Any Person not a party to the contract pursuant to which this document is delivered may not assert a claim against BUREAU VERITAS for any liability arising out of errors or omissions which may be contained in said document, or for errors of judgement, fault or negligence committed by personnel of the Society or of its Agents in establishment or issuance of this document, and in connection with any activities for which it may provide.

THE SCHEDULE OF APPROVAL

1. PRODUCT DESCRIPTION

Manual / Actuated Globe Valves & Lift Check Valve

Design: flanged or butt welded ends

1.1 Ratings

Type	Manual Globe valve	Actuated Globe valve	Lift Check Valve
Size range (mm)	DN 15 to DN 100	DN 15 to DN 300	DN 15 to DN 200
Rating	PN 10 / PN 50	PN 10	PN 10
Max. Design Pressure (bar)	10 / 50	10	10
Design Temperature range (°C)	-196/80	-196/80	-196/80

The working temperature depends on the media and the material of the seat used.

1.2 Materials

Body	SS ASTM A351 CF3M / CF8M
Cover	SS BS EN 10088-3 1.4404 (316L) / SS ASTM A351 CF3M / SS BS EN 10088-3 1.4401 (316)
Disc	SS BS EN 10088-3 1.4401 (316) / SS ASTM A351 CF8M

When other choices of materials are used per manufacturer's recommendations, the BV agreement is to be obtained.

2. DOCUMENTS AND DRAWINGS

- Drawing N°CNM30TOCNM80 Rev A Dated 01/10/2012 (DN15 - DN50 Manual Globe Valve Generic Drawing)
- Drawing N°CNM90TOCNMB0 Rev A Dated 21/06/2013 (DN65 - DN100 Manual Globe Valve Generic Drawing)
- Drawing N°CNM30PATOCNM80PA Rev A Dated 21/06/2013 (DN15 - DN50 Actuated Globe Valve Generic Drawing)
- Drawing N°CNM90PATOCNMB0PA Rev A Dated 16/02/2012 (DN65 - DN100 Actuated Globe Valve Generic Drawing)
- Drawing N°CNME0PATOCNMG0PA Rev A Dated 05/07/2013 (DN200 - DN300 Actuated Globe Valve Generic Drawing)
- Drawing N°CGT30TOCGT80 Rev A Dated 15/07/2013 (DN15 - DN50 Lift Check Valve Generic Drawing)
- Drawing N°CGT90TOCGTE0 Rev A Dated 21/06/2013 (DN65 - DN200 Lift Check Valve Generic Drawing)
- Installation, Operation and Maintenance Manuel N° L02M01 Rev D Dated 05/2008
- Quality Plan N° QP63 Issue N° 1 Dated 02/04/2012
- Test Specification - Q129 (cryogenic Test Area) Issue N° 9 dated 10/2012
- Test Specification - Q46 (cryogenic Test Area) Issue N° 1 dated 01/2013
- Test Specification - Q128 (Hobley) Issue N° 9 dated 02/2013
- Test Specification - Q31 (Hobley) Issue N° 4 dated 08/2010

No departure from the above documents shall be made without the prior consent of the Society. The manufacturer must inform the Society of any modification or changes to these documents and drawings.

3. TEST REPORTS

Type tests carried out at manufacturer's factory in presence of IACS suveyor and found in order:

- Pressure test, seat leakage test at ambient temperature
- Impact test (Charpy V test) report
- Cryogenic Test at -196°C
- Fire Test certificate N°207918 COW for DN 150 to DN 300 according to BS EN ISO 10497:2004
- Fire Test certificate N°148490 COW for DN 40 to DN 80 according to BS EN ISO 10497:2004

4. APPLICATION / LIMITATION

4.1 To use on cargo handling systems of ships granted with the service notation Liquefied gas carrier.

4.2 The valve intended to be used for handling of Propylene Oxide or Ethylene Oxide/ Propylene Oxide mixtures shall be of a fire safe design.

4.3 The valve belongs to class I pressure piping according to the relevant requirements stated in Part D, Ch 9, Sec 5 of BUREAU VERITAS Rules.

4.4 The valve intended to be installed on BV classed ship have to comply with Pt D, Ch 9, Sec 5 & IGC Code and type tests reports witnessed by BV are to be available for each type and size of valve.

4.5 When required in Part D, Ch 9, Sec 6 of BUREAU VERITAS Rules applicable to liquefied gas carriers, Charpy V-notch impact test shall be carried out for castings. Castings in steel grades 316 and 316L at any temperature will be impact tested at -196 °C. A reduction of the tests may be granted for design temperature above -60 °C after examination of each case by the Society.

4.6 The materials for valve housing, internal and sealing are to be of a suitable type at the temperature and pressure for use with

cargoes intended to be carried.

4.7 The approval does not include any operating gear for remote control of the valves.

4.8 The valve is to be installed according to manufacturer's instructions and Society's Rule requirements.

5. PRODUCTION SURVEY REQUIREMENTS

5.1 The products are to be supplied by **PEGL LTD. Trading as BESTOBELL MARINE** in compliance with the type and the requirements described in this certificate.

5.2 This type of product is within the category IBV of BUREAU VERITAS Rule Note NR320.

5.3 BUREAU VERITAS Certificates are required for materials of valve housings of Class I (DN \geq 50). Materials of valve housings of Class I (DN $<$ 50) and other pressure boundary parts of Class I are to be with work's certificates.

5.4 Materials are to comply with the approved drawings and the applicable requirements in Part D of the Society's Rules. Charpy impact test to be as per the Society's Rules on materials, and where relevant, in accordance with requirements of IGC Code.

5.5 Each valve housing for class I is to be hydraulically pressure tested to 1.5 times the design pressure.

Place of production:

BESTOBELL MARINE

President Park

President Way

SHEFFIELD

UNITED KINGDOM

6. MARKING OF PRODUCT

The valve shall be marked with at least:

- Manufacturer's name or trade mark
- Type designation
- Size and pressure class
- Society's brand as relevant

7. OTHERS

This approval is given on the understanding that the manufacturer will accept full responsibility for informing shipbuilders or their sub-contractors of the proper methods of fitting and general maintenance of the products and of the conditions of this approval.

***** END OF CERTIFICATE *****